

New Mexico Environment Department, Liquid Waste Program
Additional Material Submitted for
Liquid Waste Regulation Hearing EIB 12-01(R)
October 9, 2012



Revised Language for 302.C

As requested by the EIB, NMED offers the following clarified language for proposed new regulation 302.C.

20.7.3.302 STANDARDS; SETBACK REQUIREMENTS:

...

C. Multiple liquid waste systems, each with a design flow of 2,000 gallons per day or less, may be permitted on a single lot provided that disposal systems are set back from each other such that no area of the lot receives more than 500 gallons of effluent per day per acre. Setback distances between any two disposal systems shall be calculated as the sum of the radii of two circular areas of the minimum acreage required to provide effluent loading rates of 500 gallons per day per acre for each system. The centers of the circular areas shall be located at the points on each disposal system that are nearest to the nearest point on the other disposal system. Table 302.2 below gives examples of required radii for purposes of determining minimum separation distances.

Table 302.2: Radii for calculating minimum distance between systems on a large parcel

No. of bedrooms	Design flow, gpd	Minimum lot size, acres*	Radius of A, feet
1	150	0.75	102.0
2	300	0.75	102.0
3	375	0.75	102.0
4	440	0.88	110.5
5	500	1.0	117.8
6	550	1.1	123.5

*one acre = 43,560 square feet

For design flows other than those shown in Table 302.2, the radius used in determining the minimum separation distance can be calculated using the following formula: $r = \sqrt{A/\pi}$, where r equals the radius of the required area in feet, $\sqrt{}$ is square root, A equals the area required in square feet, and π (pi) equals 3.1416. Separation distances to facilities permitted by other entities, such as the ground water quality bureau, may be considered on a case by case basis.

In order to meet the criteria of this section, the dispersal system may be moved to meet the minimum separation distance. This may require the use of an effluent pump system. Alternatively, if the minimum separation distance cannot be achieved, tertiary treatment may be installed. Other methods of providing equal protection will be considered on a case by case basis by the department.

Lots with existing liquid waste systems totaling less than 2000 gallons per day may be permitted to add additional liquid waste systems provided the individual systems do not exceed 2000 gallons per day, meet the setback requirements to the existing systems as allowed above and meet lot size requirements in Subsection C of 20.7.3.301 NMAC.

Onsite Wastewater Loading Examples 5, 6 and 7

As requested by the EIB, additional wastewater loading drawings were prepared. These hypothetical examples were prepared, in the same manner as onsite wastewater loading examples 1-4 (NMED Exhibit 17), to illustrate why the Single Lot Policy was created, and how proposed regulation 302.C would work.

Example 5 illustrates five 1,800 gpd septic systems located in close proximity to each other on a large lot. The combined liquid waste flow of 9,000 gpd would require a minimum lot size of 18 acres, based on the 500 gpd/acre rule of regulation 301.C. The lot size in this hypothetical example is 54 acres, much larger than the minimum requirement of 18 acres. Because the wastewater is discharged in one small area, rather than being dispersed across a larger portion of the lot, a substantial groundwater impact (contamination) zone is shown. The length of the impact zone is shown to be longer than would have been from any one of the five 1,800 gpd systems individually because of water table mounding, which increases the hydraulic gradient, and because the higher concentration of wastewater constituents would require a longer migration distance to undergo natural attenuation. Several water supply wells in the adjacent subdivision are shown to be impacted by off-site migration from the condo lot. Example 5 is the type of situation (NMED Exhibits 21 and 22) that led to the development of the Single Lot Policy (NMED Exhibit 23).

Example 6 shows the same number of condos, and septic systems as in Example 5, except that the condos and septic systems are spread out over a larger portion of the 54 acre lot, in accordance with the proposed setback requirements of 302.C. Each 1,800 gpd septic system would require 3.6 acres, or a circle with a radius of 233 feet, as in proposed rule 302.C. In this hypothetical example, the water supply wells and wastewater systems are optimally located so that no wells are impacted in either the condo area or subdivision. Even though the wastewater would not be dispersed throughout the circular area prescribed by proposed regulation 302.C, water supply wells would be protected in this example.

Example 7 shows the same number of condos and septic systems as in Examples 5 and 6, with the condos and septic systems spread out in a different configuration over the 54 acre lot, but still

in accordance with the proposed setback requirements of 302.C. Example 7 also shows setback distances that would be maintained between the subdivision septic systems and condo septic systems. The water supply wells and wastewater systems in this example are not optimally located and, even though the proposed setback distance requirements are met, wells are impacted in both the condo area and subdivision.

The proposed amendments to regulation 302.C will not create a potential for groundwater pollution that does not already exist in the current regulations. The Liquid Waste Regulations do not require that wastewater flows be dispersed across the minimum required acreage for which they are permitted, as this would be costly and impractical. Wastewater flows are discharged into whatever size and configuration of disposal system is permitted, and the footprints of these disposal systems are smaller than the minimum lot sizes. Contaminants in larger flows can migrate for longer distances before naturally attenuating to acceptable levels. It should be kept in mind that the existing setback standards of 100 and 200 feet between disposal systems and private and public water wells, respectively, are designed to protect against microbiological, not chemical, contaminants.

This discussion also reinforces NMED's position that the scope of the Liquid Waste Regulations 20.7.3.2.A, should not be increased from 2,000 gpd to 5,000 gpd.

Water Wells that are Drilled Too Close to Pre-Existing Liquid Waste Systems

NMED occasionally has to deal with situations in which someone drills a water supply well too close to an existing liquid waste system on a neighboring property, in violation of the New Mexico Office of the State Engineer Well Drilling Rules (19.27.4.29.D, NMAC). The owner of the liquid waste system, through no fault of his or her own, now has a system that does not comply with the water well setback requirements of Table 302.1.

NMED proposes the following language as a new 302.E subsection to resolve these conflicts in favor of the owner of the pre-existing liquid waste system.

E. For water wells that are drilled too close to pre-existing liquid waste systems on neighboring properties, the water well setback requirements in Table 302.1 shall not be administered to the subject well.

Use of the Term "Registration"

The Liquid Waste Regulation amendments, as proposed, would have four uses of the term "registration".

1. A certificate of registration (as defined in 20.7.3.7.C.2) issued to unpermitted liquid waste systems (401.J);
2. A proposed new definition of "registration" (20.7.3.7.R.2, proposed) that would be in the context of a certificate of registration;

3. A septic tank registration number issued to tank manufacturers (501.B.4.b); and
4. Registration for a NMED training class on the regulations (904.E.8 proposed).

In order to avoid confusion, NMED recommends that the proposed new definition of “registration” be substituted for the current definition of “certificate of registration”, and that the term “registration” not be specifically defined.

Explanation of Various Depth-to-Groundwater Regulations In the Liquid Waste Regulations

The liquid waste regulations contain a number of varying references to depth-to-groundwater. With regard to depth to groundwater, one size does not fit all. Each of these various depths to groundwater serves a different purpose.

Regulation 20.7.3 (NMAC)	Depth (feet)	Purpose
201.M	100 or less	More stringent requirements may be imposed if the vadose zone thickness (equivalent to the depth to groundwater in most cases) is 100 feet or less
301.F (proposed)	400-600	Lot size requirements may not be applied in area with depth to groundwater of 400-600 feet where capillary barrier exists in vadose zone
301.F (proposed)	greater than 600	Lot size requirements may not be applied in area with depth to groundwater greater than 600 feet
Table 301.3	4-12	This table summarizes historical water table (groundwater) clearance requirements that are no longer effective except for determining the compliance status of existing systems
Table 302.2 and 303	4	Clearance requirement between bottom of disposal system and seasonal high water table (groundwater), intended to provide for filtration of pathogens in percolating effluent
605.C(2)	1-4	Secondary treatment and disinfection required
605.C(3)	Less than 1	No discharge allowed
703.F	30	Conventional systems cannot be constructed in type 1a soils (coarse sand) if the depth to groundwater is less than 30 feet
703.I	30	Systems may be installed in soil with more than 30% gravel if depth to groundwater is 30 feet or greater, provided that at least 4 feet of suitable soil exists in the vadose zone

Definition of “Vadose Zone”

It was suggested earlier in the hearing that a definition of “vadose zone” might be useful. The N.M. Water Quality Control Commission Regulations 20.6.2.7.XX contains the following definition that NMED believes would work for the Liquid Waste Regulations:

“Vadose zone means earth material below the land surface and above ground water, or in between bodies of ground water.”

Onsite Wastewater Loading Example 5

54 acre condo lot

wastewater loading rate
= 9,000 gpd/54 ac
= 167 gpd/ac

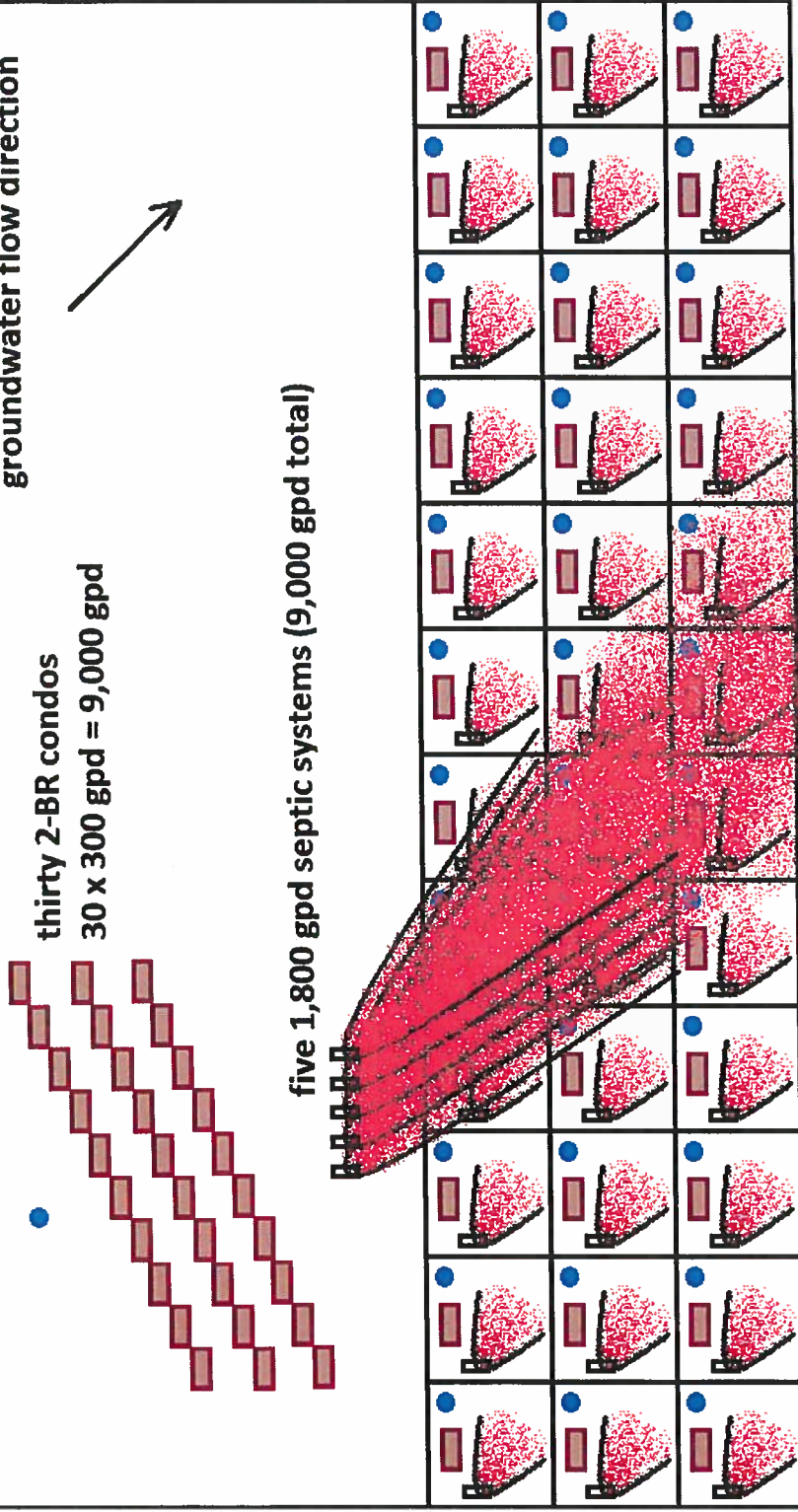
groundwater flow direction



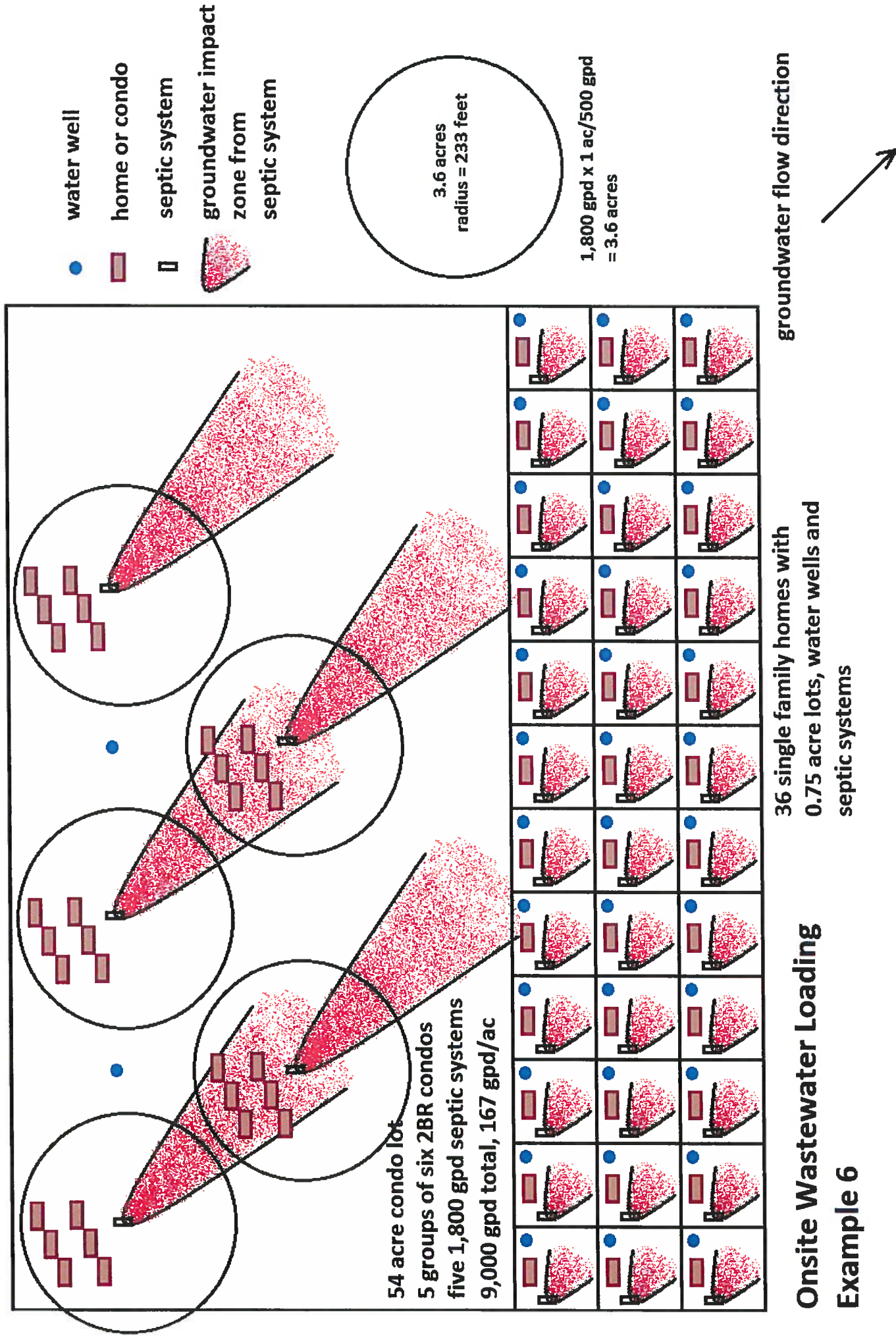
thirty 2-BR condos
30 x 300 gpd = 9,000 gpd

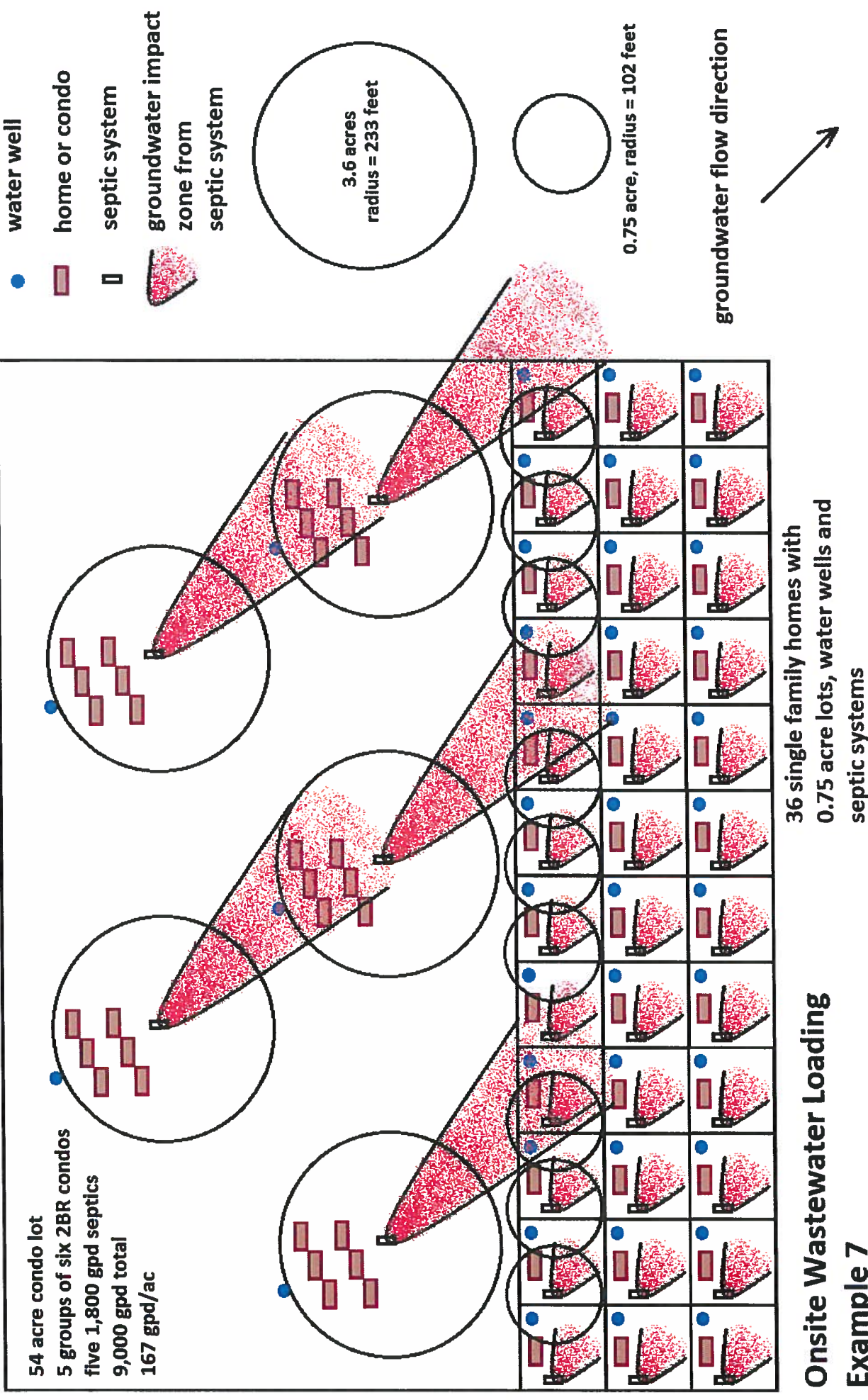
five 1,800 gpd septic systems (9,000 gpd total)

- water well
- home or condo
- septic system
- groundwater impact zone from septic system



36 single family homes with
0.75 acre lots, water wells and
septic systems





**STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT BOARD**

**IN THE MATTER OF:
Proposed Amendments to the Liquid
Waste Disposal and Treatment Regulations, 20.7.3 NMAC.**

EIB 12-01(R)

**BRIEF ON LACK OF CONFLICT BETWEEN PROPOSED CHANGES AND WQCC
REGULATIONS**

The Environmental Health Division of the New Mexico Environment Department submits the following information to demonstrate that proposed changes to the scope of 20.7.3 NMAC will not conflict with current WQCC regulations.

I. Current WQCC Regulations

Current WQCC regulations found at 20.6.2 “Ground and Surface Water Protection” contain the requirements for groundwater discharge permits. Section 20.6.2.1201(A) NMAC requires that “Any person intending to make a new water contaminant discharge” (regardless of the size of the discharge) must submit a Notice of Intent to Discharge to the Groundwater Quality Bureau “[U]nless the discharge is being made . . . subject to the Liquid Waste Disposal Regulations adopted by the New Mexico Environmental Improvement Board.” 20.6.2.1201(A) NMAC.

This language does not conflict with the proposed amendments to the liquid waste rules, because it effectively exempts anyone who will be covered by the liquid waste rules from all of the requirements of Section 1201 and following sections.

Current WQCC regulations found at 20.6.2.3105(B) NMAC, titled “Exemptions from Discharge Permit Requirement” state that WQCC regulations do not apply to “Effluent which is discharged from a sewerage system used only for disposal of household and other domestic

waste which is designed to receive and which receives 2,000 gallons or less of liquid waste per day” (emphasis added). Under this rule, a system with a design flow of 2,500 gallons per day, but that actually received only 2,000 gallons per day or less, would be exempt from WQCC regulations.

II. Proposed Change to Scope of Liquid Waste Regulations

The Amended Petition proposes to change the scope of the liquid waste rule so that it would apply only to “on-site liquid waste systems, and effluent from such systems, that receive 2,000 gallons per day or less.” Proposed Amendments, at 20.7.3.2, “Scope.”

Under the current liquid waste regulations, a system with a design flow of 2001 gallons per day or more would be exempt from our rules and would therefore require a groundwater discharge permit. The proposed rule change would incorporate a formula found at 20.7.3.201(O), “Procedures; General Requirements” whereby only 80% of design flow would be considered when determining whether a system qualifies for a liquid waste permit. The 80% factor is included because design flow is the maximum flow that a system can support, and in practice, actual daily flows are substantially less.

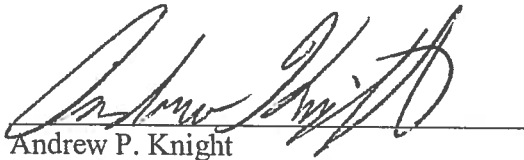
The effect of this change, combined with the changes in 20.7.3.2, “Scope” mean that a system with a design flow of up to 2500 gallons per day would still qualify for a liquid waste permit, because its actual flow, as calculated under 20.7.3.201(O) would be only 2,000 gallons per day. Such a system would be exempt from WQCC regulations both because it is “Subject to Liquid Waste Disposal Regulations” (20.6.2.1201(A)) and because it does not receive more than 2,000 gallons per day (20.6.2.3105(B)).

III. Conclusion

No conflict will exist between the proposed Liquid Waste Regulations and existing WQCC regulations, as long as the proposed amendments to both sections 20.7.3.2 "Scope" and 20.7.3.201(O) "Procedures; General Requirements" are adopted by the Board. If the Board rejected the proposed changes to one or both of these sections, there would still be no conflict. Rather, it would simply keep the status quo, whereby any system with a design flow of 2,000 gallons or more per day would need a groundwater discharge permit.

Respectfully Submitted,

NEW MEXICO ENVIRONMENT DEPT.

A handwritten signature in black ink, appearing to read "Andrew P. Knight", is written over a horizontal line.

Andrew P. Knight
Assistant General Counsel